



❖ ### 1. Explain Switch

- ❖ A **switch** is a networking device that connects devices within a local area network (LAN). It operates at Layer 2 (Data Link Layer) of the OSI model, forwarding data packets based on MAC addresses. Switches create a network by connecting multiple devices and using MAC addresses to efficiently send data only to the intended recipient, reducing network congestion.



❖ ### 2. Explain Switch Boot Sequence

- ❖ The **switch boot sequence** typically involves the following steps:
- ❖ 1. **Power On Self Test (POST):** The switch performs hardware diagnostics to ensure all components are functioning correctly.
- ❖ 2. **Load Bootstrap Program:** The switch loads a small program from ROM that initializes the system.
- ❖ 3. **Locate and Load the IOS:** The switch searches for the Cisco IOS (Internetwork Operating System) in flash memory, TFTP server, or another source and loads it into RAM.
- ❖ 4. **Initialize the Switch:** The switch initializes the hardware and interfaces.
- ❖ 5. **Load the Configuration File:** The switch loads the configuration file from NVRAM, which contains settings and parameters for the switch operation.



❖ ### 3. Explain Three Methods to Access Switch Command Line Interface

- ❖ 1. **Console Access:** Connect a computer to the switch's console port using a serial cable. Use terminal emulation software (like PuTTY or Tera Term) to access the CLI.
- ❖ 2. **Telnet:** Access the switch remotely over a network using Telnet. This requires the switch to be configured for remote access and have an IP address assigned.
- ❖ 3. **SSH (Secure Shell):** A more secure method than Telnet, SSH allows encrypted remote access to the switch's CLI over the network.



❖ ### 4. Explain and Configuring the Cisco Internet Operating System

- ❖ *The **Cisco IOS** is the operating system used on Cisco routers and switches. It provides a command-line interface (CLI) for configuring and managing network devices. Configuration typically involves:*
- ❖ *- **Accessing the CLI:** Using console, Telnet, or SSH.*
- ❖ *- **Entering Configuration Mode:** Using the command 'configure terminal'.*
- ❖ *- **Setting Parameters:** Configuring interfaces, routing protocols, security settings, etc.*
- ❖ *- **Saving Configuration:** Using the command 'write memory' or 'copy running-config startup-config' to save changes.*



- ❖ *### 5. Neighbor Relationships in Routers*
- ❖ *Assuming all four routers (R1, R2, R3, R4) have their Fast Ethernet 0/0 interfaces in the same VLAN and can ping each other, the routers that will be able to form a neighbor relationship with the other routers are:*
- ❖ *- **A. R1***
- ❖ *- **B. R2** (or any combination of two routers that are configured correctly)*



- ❖ *### 6. 3-enable Secret Password Hashing Algorithm*
- ❖ *The hashing algorithm used for the command 'enable secret [password]' is:*
- ❖ *- **A. MD5***



- ❖ *### 7. OSPF Neighbor Status Meaning*
- ❖ *If the status of neighbor 2.2.2.2 shows **FULL/BDR**, it means:*
- ❖ *- **B. R1 is a backup designated router.***



- ❖ *### 8. Command to View Neighbor Discovery Table on a PC*
- ❖ *The command used to view the neighbor discovery table on a PC is:*
- ❖ *- **C. netsh interface ipv6 show neighbor***



- ❖ *### 9. Type of Variable Shown*
- ❖ *The variable 'Routers = [R1,R2,R3]' is:*
- ❖ *- **A. List***



- ❖ *### 10. Identify the Fields in an IPv4 Header (Choose Three)*

❖ *The fields in an IPv4 header include:*

❖ - *****B. Time to Live*****

❖ - *****C. Source address*****

❖ - *****D. Destination address*****

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